CLAIMS

1. A permselective asymmetric hollow fiber membrane being suitable for, for example, hemodialysis, comprised of at least one hydrophobic polymer and at least one hydrophilic polymer, c h a r a c t e r i z e d in that an outer surface of the hollow fiber membrane has pores in the range of 0,5-3 μm, and that the numbers of said pores on the outer surface are in the range of 10,000 to 150,000 pores per mm^2, preferably in the range of 18,000 to 100,000 pores per mm^2, most preferably in the range of 20,000 to 100,000 pores per mm^2.

2. A membrane according to claim 1, wherein said membrane has a four layer structure comprising a first inner separation layer in form of a dense rather thin layer, a second layer in the form of a sponge structure, a third layer in form of a finger structure, and a fourth outer layer in form of a sponge layer having the outer surface according to claim 1.

3. A membrane according to claim 2, wherein said membrane has a diffusive permeability of urea of 15-17 x 10^{-4} cm/sec measured at 37°C.

4. A membrane according to claim 2 or claim 3, wherein said first separation layer has a thickness less than 1 μm, said second layer has a thickness of about 1 to 15 μm, said third layer has a thickness of about 20 to 60 μm, and said fourth layer has a thickness of about 1 to 10 μm.

5. A membrane according to anyone of claims 1-4, wherein it consists of 65-95 % by weight of said at least one hydrophobic polymer and 5-35 % by weight of said at least one hydrophilic polymer.

6. A membrane according to anyone of the claims 1-5, wherein said at least one hydrophobic polymer is chosen from the group consisting of polyamide (PA), polyaramide (PAA), polyarylethersulphone (PAES), polyethersulphone (PES), polysulphone (PSU), polyarylsulphone (PASU), polycarbonate (PC), polyether, polyurethane (PUR), polyetherimide and copolymers of said polymers, preferably polyethersulphone or a mix of polyarylethersulphone and polyamide.

7. A membrane according to anyone of the claims 1-6, wherein the at least one hydrophilic polymer is chosen from the group consisting of polyvinylpyrrolidone (PVP), polyethylene glycol (PEG), polyglycolmonoester, water soluble cellulosic derivates, polysorbate and polyethylene-polypropylene oxide copolymers, preferably polyvinylpyrrolidone.

8. Process the preparation of a membrane according to anyone of claims 1-7 by solvent phase inversion spinning, comprising the steps of

a) said at least one hydrophobic polymer and said at least one hydrophilic polymer are dissolved in at least one solvent to form a polymer solution,

b) said formed polymer solution is extruded through an outer ring slit of a nozzle with two concentric openings,

c) a center fluid is extruded through the inner opening of the nozzle, thereafter

d) said membrane is washed and preferably dried, c h a r a c t e r i z e d in that the polymer solution coming out through the outer slit opening is, on the outside of the precipitating fiber, exposed to a humid steam/air mixture comprising a solvent in a content of

between 0,5 and 10% by weight related to the water content.

9. Process according to claim 8, wherein the solvent content within the humid steam/air mixture is between 0,5 and 5 % by weight related to the water content.

10. Process according to claim 8, wherein the solvent content within the humid steam/air mixture is between 2 and 3 % by weight related to the water content.

11. Process according anyone of claims 8 to 10, wherein the temperature of the humid steam/air mixture is at least 15°C, preferably at least 30°C, and at most 75 °C, preferably at most 60°C.

12. Process according to anyone of claims 8 to 11, wherein the relative humidity in the humid steam/air mixture is between 60 and 100%.

13. Process according to any of claims 8-12, wherein the polymer solution consists of 10-20 % by weight of the at least one hydrophobic polymer, 3-11 % by weight of the at least one hydrophilic polymer, 66-86 % by weight solvent and 1-5 % by weight suitable additives.

14. Process according to anyone of claims 8-13, wherein the polymer solution comprise 1-5 % by weight coagulation fluid chosen from the group of water, glycerol or other alcohols.

15. Process according to anyone of claims 8-14, wherein said solvent is chosen from the group comprising n-methylpyrrolidon (NMP), dimethylacetamide (DMAC), dimethylsulphoxide (DMSO), dimethylformamide (DMF), buturolactone and mixtures of said solvents.

16. Process according to anyone of claims 8-15, wherein said center fluid includes a part of said at least one hydrophilic polymer.

17. Process according to anyone of claims 8-16, wherein said center fluid includes at least one solvent chosen from the group comprising n-methylpyrrolidon (NMP), dimethylacetamide (DMAC), dimethylsulphoxide (DMSO), dimethylformamide (DMF), butyrolactone and mixtures of said solvents.

18. Process according to anyone of claims 8-17, wherein said center fluid includes precipitation medium chosen form the group water, glycerol and other alcohols.

19. Process according to anyone of claims 8-18, wherein said center fluid consist of 45-70 % by weight precipitation medium, 30-55 % by weight solvent and 0-5% said at least one hydrophilic polymer.

20. Use of a membrane according to anyone of claims 1-7 in hemodialysis, hemodiafiltration, and hemofiltration.

21. Use of a membrane according to anyone of claims 1-7 in dialysis and filtration.

22. Use of a membrane manufactured according to any of claims 8-19 in hemodialysis, hemodiafiltration, and hemofiltration.

23. Use of a membrane manufactured according to any of claims 8-19 in dialysis and filtration.